CLAIMS

What is claimed is:

1. A method for filtration of wastewater within a filtration system comprising multiple filter units, the method comprising:

a. operating fewer than all units within the filtration system in a filtration-only mode; and

b. simultaneously operating the remaining units in a denitrification mode.

2. A method for filtration of wastewater within a filtration system comprising multiple filter units, the method comprising:

a. selecting one or more filter units to operate in a denitrification mode;

b. pumping a carbon source to the one or more filter units selected in step (a);

c. operating the filter units selected in step (a) in denitrification mode until desired NO_X-N level is attained; and

d. operating the remaining filter units in a filtration-only mode.

3. The method for filtration of claim 2 wherein the flow rate of the carbon source to the one or more filter units is activated by a valve.

4. A method for filtration of wastewater within a filtration system comprising multiple filter units, the method comprising:

a. selecting one or more filter units to operate in a denitrification mode, each filter unit of the filtration system comprising a separate influent flow conduit;

b. charging a carbon source to each influent flow entering the filter units selected in step (a);

c. operating the filter units selected in step (a) in denitrification mode until desired NOX-N level is attained; and

d. operating the remaining filter units in a filtration-only mode.

5. The method of claim 4 wherein the influent flow conduit to each filter unit is an influent pipe.

6. The method of claim 4 wherein the influent flow conduit to each filter unit is an influent channel.

7. The method of claim 4 wherein the carbon source to each filter unit is directed to an influent chamber prior to entering the influent flow pipe.

8. The method of claim 4 wherein the carbon source is selected from a group of carbon sources comprising methanol, ethanol, acetic acid, brewery wastes, sugars, primary effluent and combinations thereof.

9. The method of claim 4 wherein the carbon source is diluted with clean water prior to charging the carbon source to the influent flows of the one or more filter units selected in step (a).

10. The method of claim 9 wherein the carbon source is injected directly into a clean water pipe, thoroughly mixed with clean water and diverted into each influent flow for the ~~filter units selected in step (a).~~

11. The method of claim 4 wherein the carbon source is injected directly into influent flows entering the filter units selected in step (a).

12. A method for filtration of wastewater within a multi-mode filtration system comprising multiple filter units, the method comprising:

a. selecting one or more filter units to operate in a denitrification mode;

b. adjusting the influent flow rate of the one or more filter units selected in step (a) for denitrification operation;

c. pumping a carbon source to the one or more filter units selected in step (a);

d. operating the remaining filter units in a filtration-only mode;

e. operating the filter units selected in step (a) in denitrification mode until desired NO_X-N level is attained.

13. A method for filtration of wastewater within a multi-mode filtration system comprising multiple filter units, the method comprising:

a. selecting one or more filter units to operate in a denitrification mode;

b. adjusting the influent flow rate of the one or more filter units selected in step (a) for denitrification operation;

c. pumping a carbon source to the one or more filter units selected in step (a);

d. adjusting the influent flow rate for the filter units in the filtration-only mode;

e. operating the filter units selected in step (a) in denitrification mode until desired NO_X-N level is attained; and

f. operating the remaining filter units in a filtration-only mode.

14. The method of claim 13 wherein the influent flow rate for the denitrification operation in step (b) and the influent flow rate for the filtration-only operation are adjusted by use of one or more separate valve systems for each filter unit.

15. The method of claim 14 wherein each valve system comprises two or more flow control valves.

16. The method of claim 14 wherein the valve system comprises one or more proportioning valves.

17. The method of claim 14 wherein the valve system comprises a hydraulic flow control.

18. The method of claim 13 wherein the flow rate of the carbon source is adjusted by a solenoid valve.

19. A multi-mode filtration system comprising:

two or more filter units, each unit capable of operating in either a filtration mode or a denitrification mode;

each filter unit of the two or more filter units comprising a separate influent flow and a separate flow control system; and

a carbon source pump and piping for directing the carbon source to the two or more filter units as needed, the piping including a separate feed pipe for each filter unit so that the carbon source is fed only to the filter units selected for operating in the denitrification mode.

20. The filtration system of claim 19 further comprising an influent pipe for containing the influent flow for each filter unit.

21. The filtration system of claim 19 further comprising an influent channel for containing the influent flow for each filter unit.

21. The filtration system of claim 19 further comprising an influent chamber for containing the carbon source for each filter unit.

22. A multi-mode filtration system comprising multiple filter units, the method comprising:

two or more filter units capable of operating in either filtration mode or denitrification mode;

each filter unit of the two or more filter units comprising a separate influent flow;

each filter unit comprising a valve control system for regulating the influent flow to the filter unit; and

a carbon source pump and piping capable of directing the carbon source directly to any one unit of the two or more filter units.

23. The filtration system of claim 22 wherein the valve control system for each filter unit comprises two or more flow control valves.

24. The filtration system of claim 22 wherein the valve control system comprises one or more proportioning valves.

25. The filtration system of claim 22 wherein the valve control system comprises a hydraulic flow control.